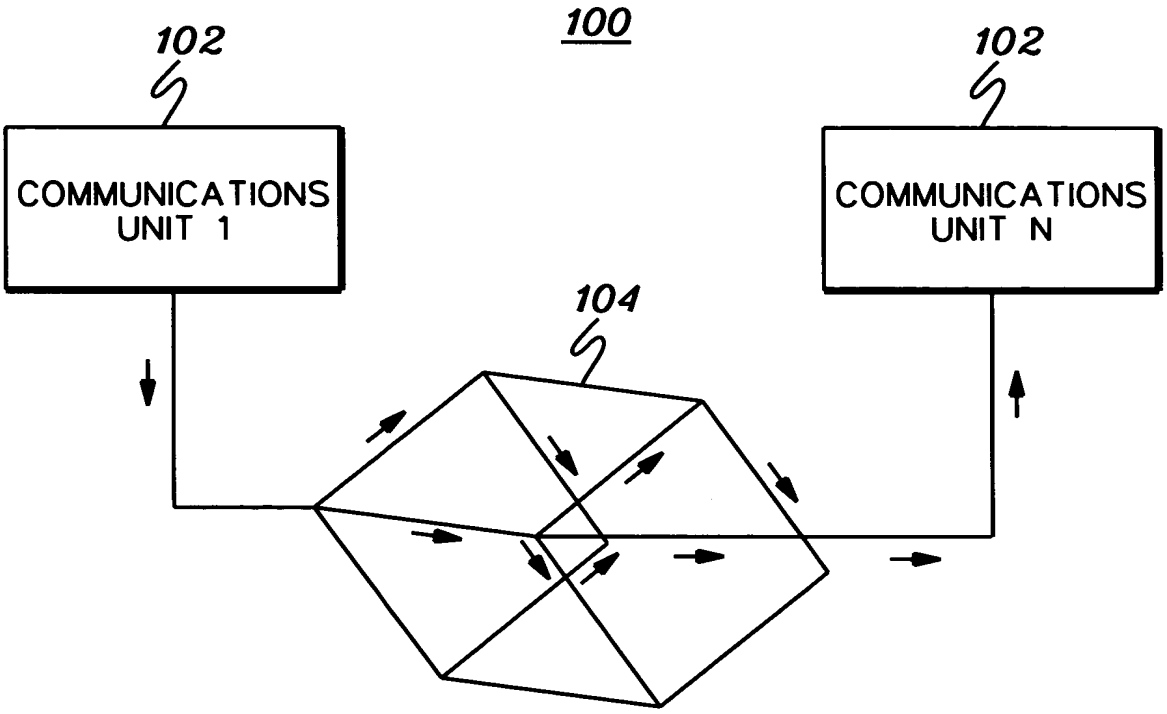
100
102
102
COMMUNICATIONS UNIT 1
COMMUNICATIONS UNIT N
104

fig. 1A

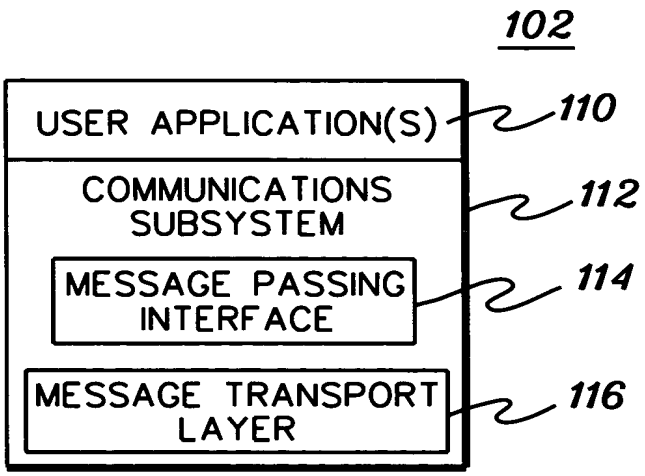
102
USER APPLICATION(S)
110
COMMUNICATIONS SUBSYSTEM
112
MESSAGE PASSING INTERFACE
114
MESSAGE TRANSPORT LAYER
116

fig. 1B

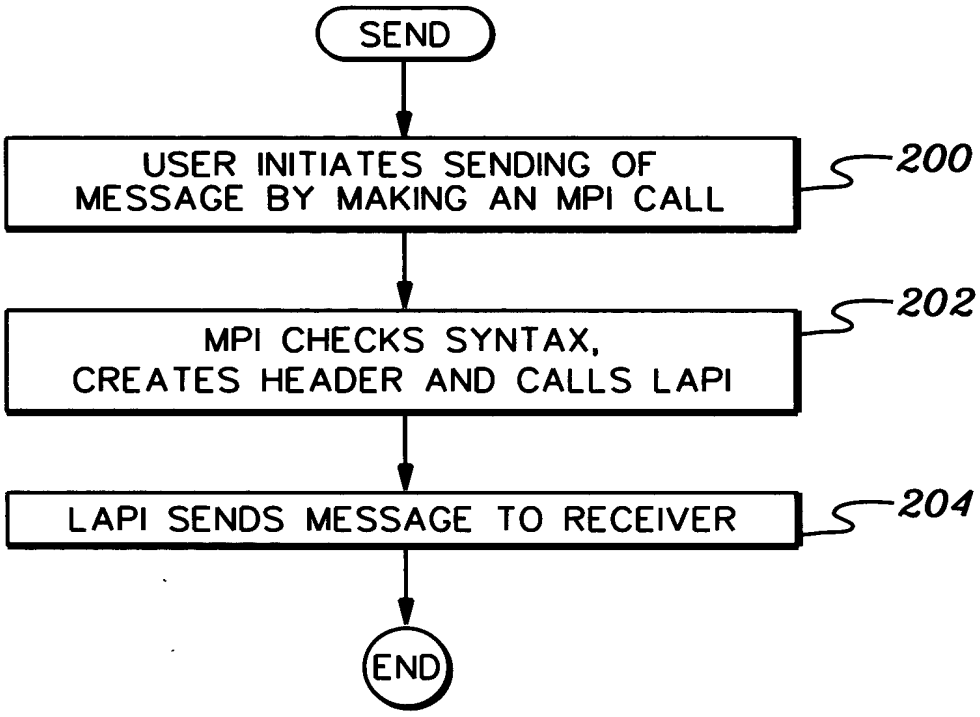
SEND
USER INITIATES SENDING OF MESSAGE BY MAKING AN MPI CALL
200
MPI CHECKS SYNTAX, CREATES HEADER AND CALLS LAPI
202
LAPI SENDS MESSAGE TO RECEIVER
204
END

fig. 2A

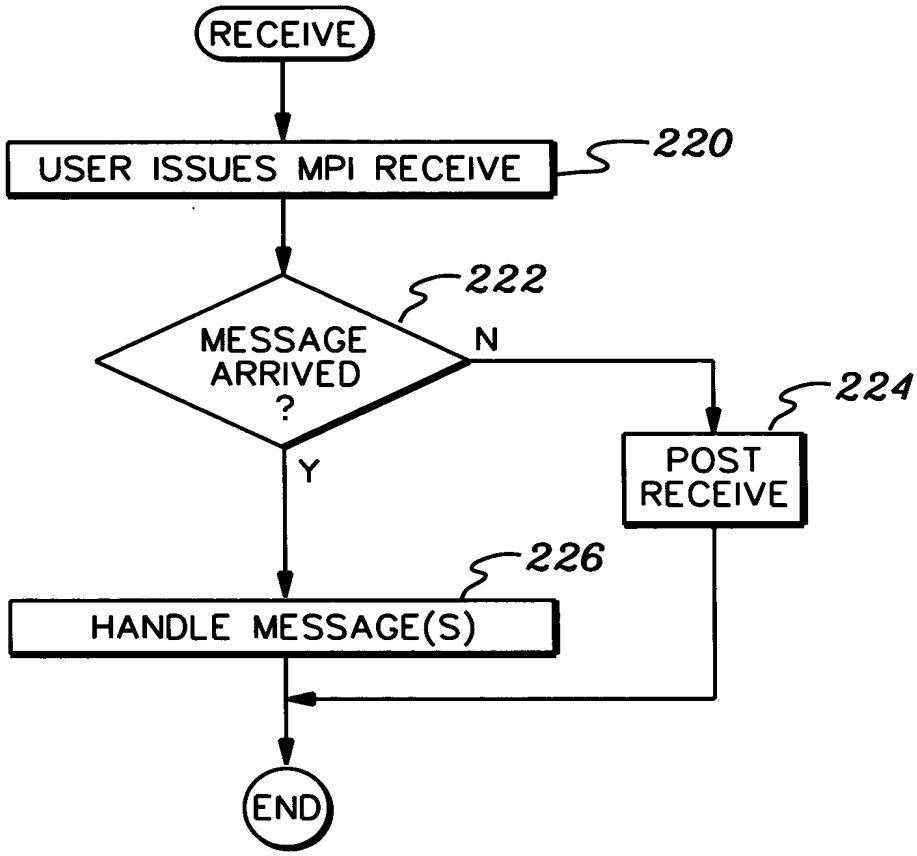
RECEIVE
USER ISSUES MPI RECEIVE
220
222
MESSAGE ARRIVED ?
N
Y
224
POST RECEIVE
226
HANDLE MESSAGE(S)
END

fig. 2B

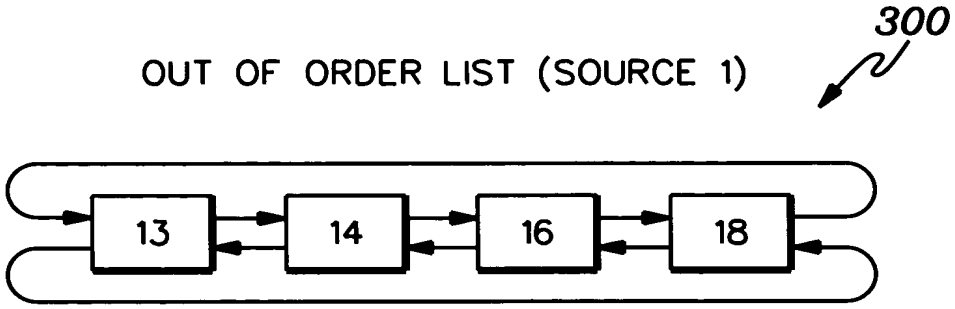

fig. 3A

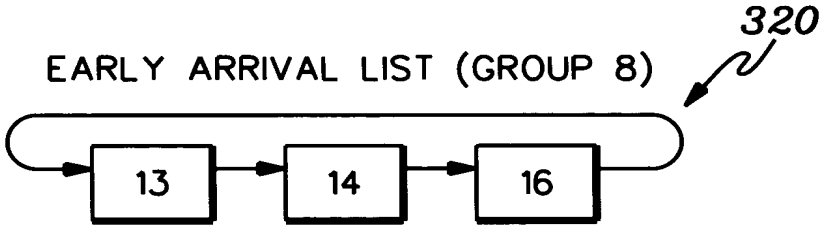

fig. 3B

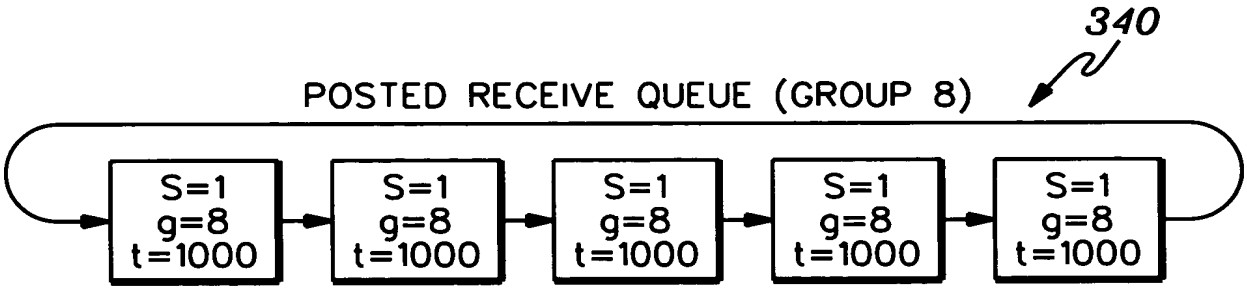

fig. 3C

360

UNMATCHED MESSAGES BUFFER

362

SEQ. No. 364	TAG 366	GROUP No. 368	SOURCE 370	DATA 372
⋮	⋮	⋮	⋮	⋮
11	1000	7	2	•••
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮
13	1000	8	1	•••
16	1000	8	1	•••
14	1000	8	1	•••
18	1000	7	2	•••
18	1000	7	1	•••
⋮	⋮	⋮	⋮	⋮

fig. 3D

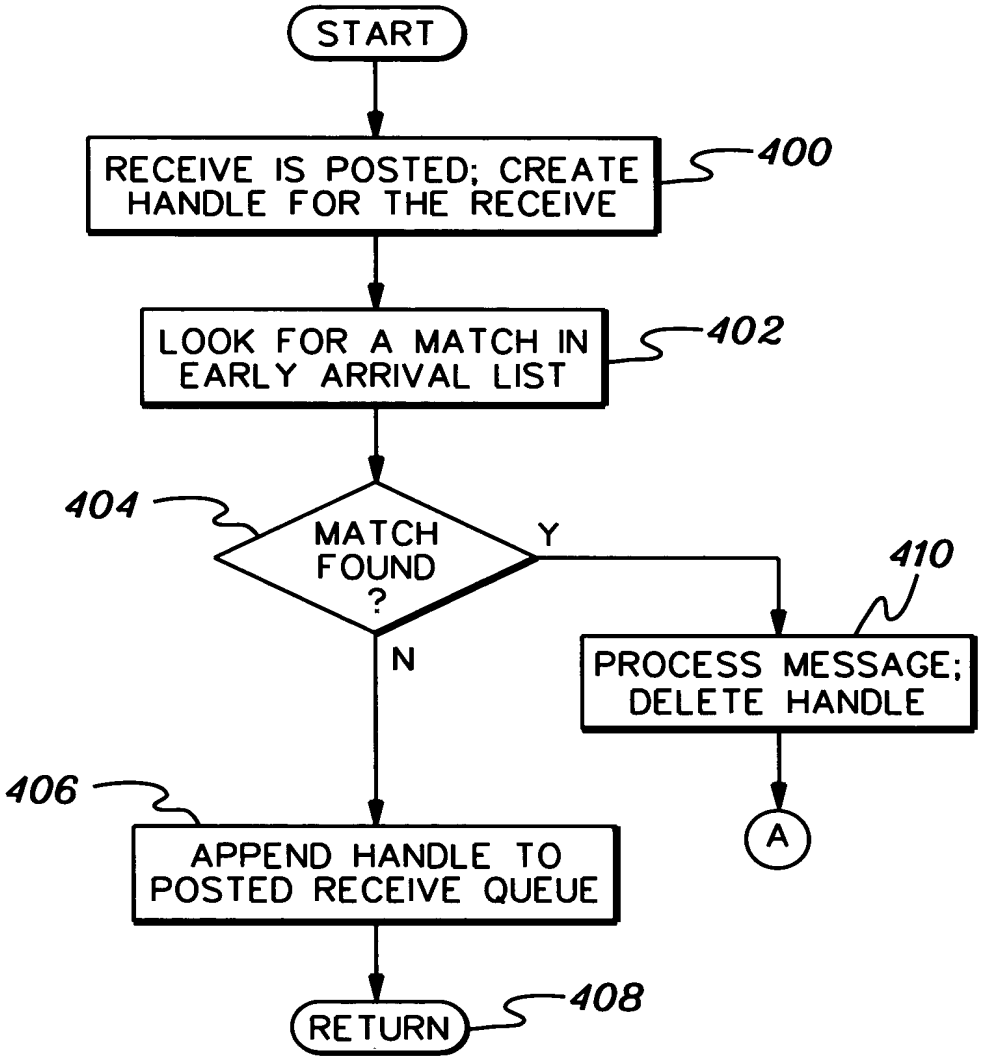
START
RECEIVE IS POSTED; CREATE HANDLE FOR THE RECEIVE
400
LOOK FOR A MATCH IN EARLY ARRIVAL LIST
402
404
MATCH FOUND ?
Y
N
410
PROCESS MESSAGE; DELETE HANDLE
A
406
APPEND HANDLE TO POSTED RECEIVE QUEUE
RETURN
408

fig. 4A

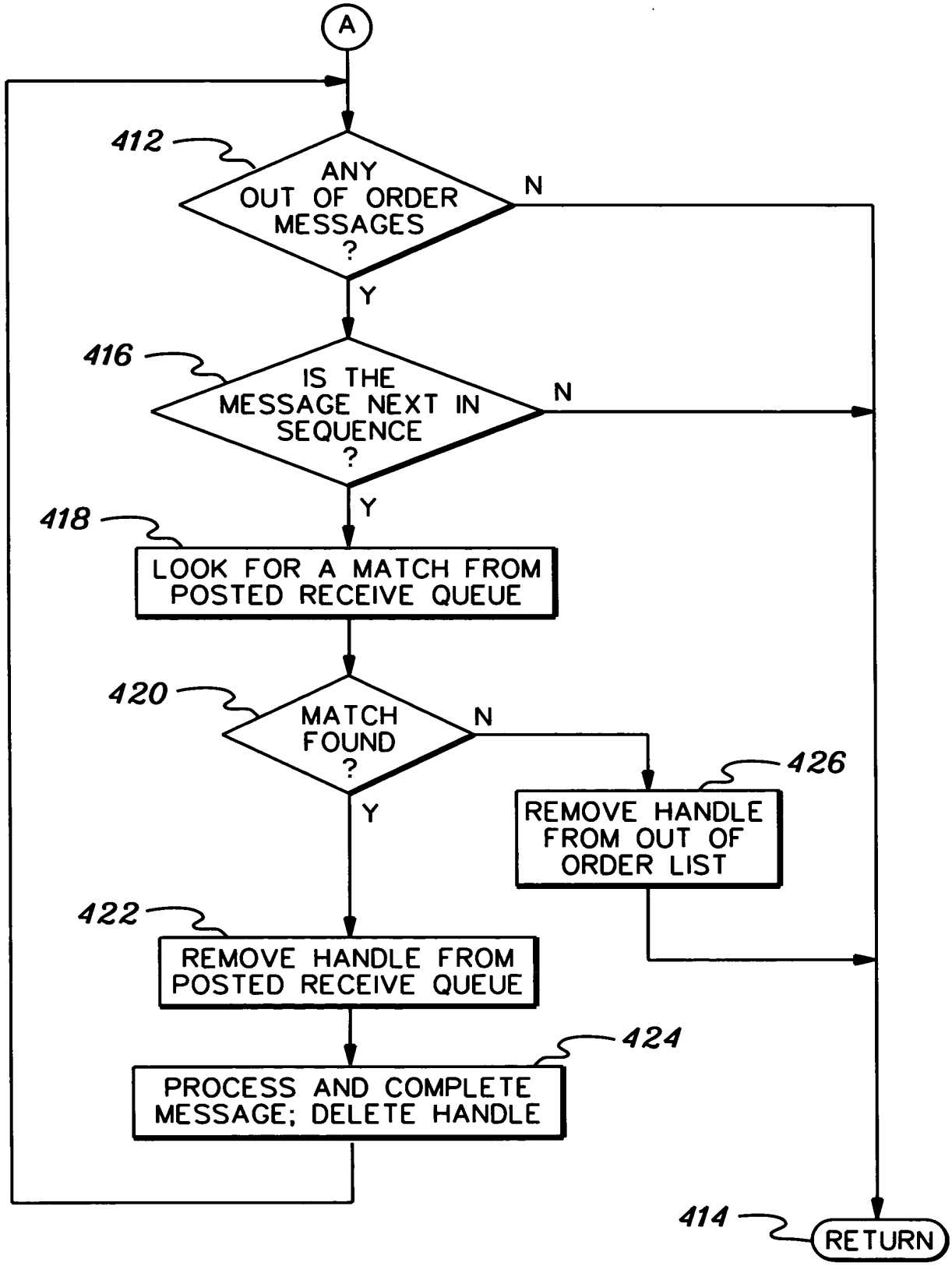
A
412
ANY OUT OF ORDER MESSAGES ?
N
Y
416
IS THE MESSAGE NEXT IN SEQUENCE ?
N
Y
418
LOOK FOR A MATCH FROM POSTED RECEIVE QUEUE
420
MATCH FOUND ?
N
Y
426
REMOVE HANDLE FROM OUT OF ORDER LIST
422
REMOVE HANDLE FROM POSTED RECEIVE QUEUE
424
PROCESS AND COMPLETE MESSAGE; DELETE HANDLE
414
RETURN

fig. 4B

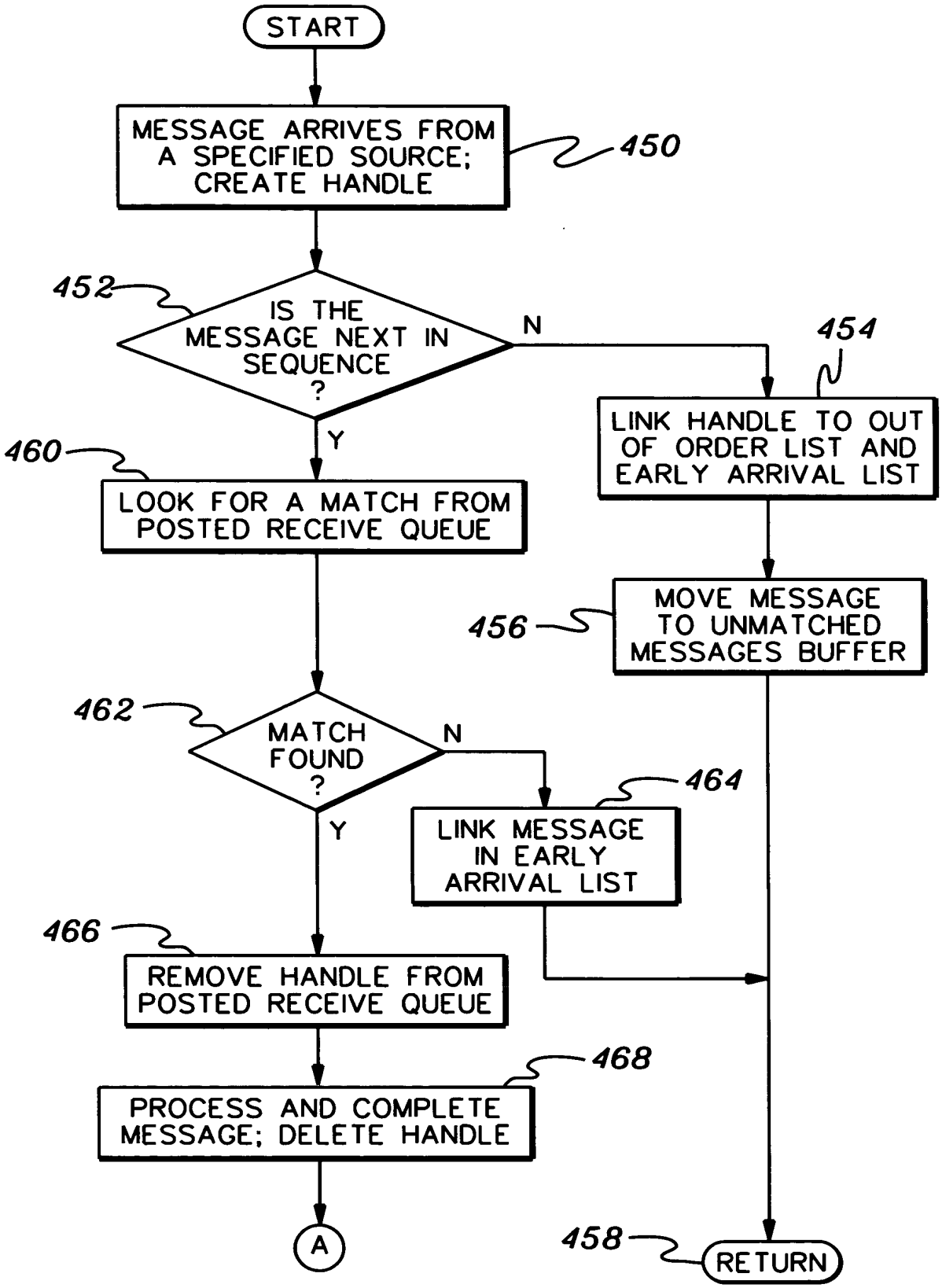
START
MESSAGE ARRIVES FROM A SPECIFIED SOURCE; CREATE HANDLE
450
452
IS THE MESSAGE NEXT IN SEQUENCE ?
N
454
LINK HANDLE TO OUT OF ORDER LIST AND EARLY ARRIVAL LIST
Y
460
LOOK FOR A MATCH FROM POSTED RECEIVE QUEUE
456
MOVE MESSAGE TO UNMATCHED MESSAGES BUFFER
462
MATCH FOUND ?
N
464
LINK MESSAGE IN EARLY ARRIVAL LIST
Y
466
REMOVE HANDLE FROM POSTED RECEIVE QUEUE
468
PROCESS AND COMPLETE MESSAGE; DELETE HANDLE
A
458
RETURN

fig. 4C

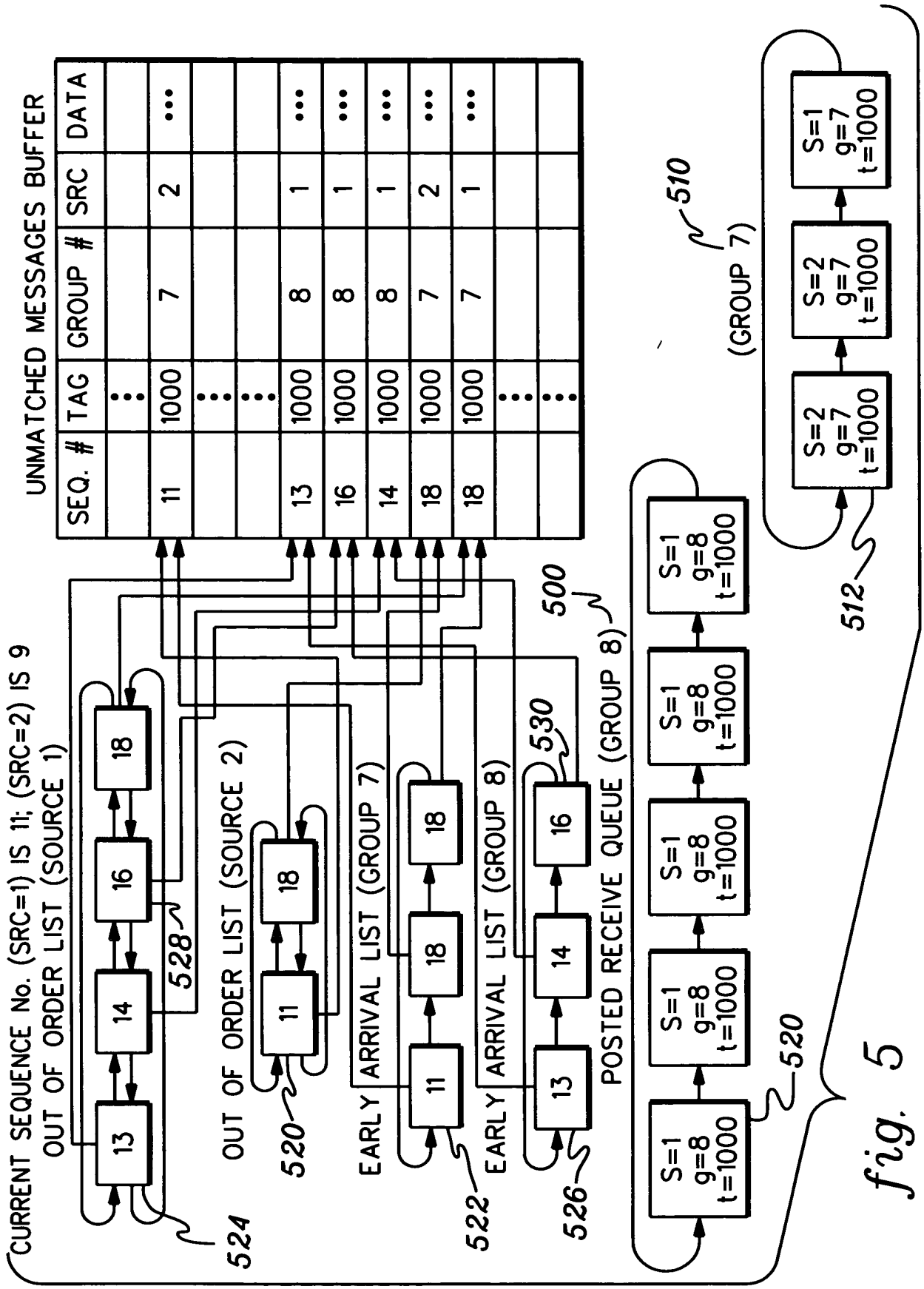
UNMATCHED MESSAGES BUFFER
SEQ. #
TAG
GROUP #
SRC
DATA
CURRENT SEQUENCE No. (SRC=1) IS 11; (SRC=2) IS 9
OUT OF ORDER LIST (SOURCE 1)
OUT OF ORDER LIST (SOURCE 2)
EARLY ARRIVAL LIST (GROUP 7)
EARLY ARRIVAL LIST (GROUP 8)
POSTED RECEIVE QUEUE (GROUP 8)
(GROUP 7)
S=1 g=8 t=1000
S=2 g=7 t=1000
S=1 g=7 t=1000
500
510
512
520
522
524
526
528
530

fig. 5